Influenza in Greenland 1914 - 1921

Untold Stories and Diverging Patterns

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Influenza in Greenland 1914 - 1921
Untold Stories and Diverging Patterns

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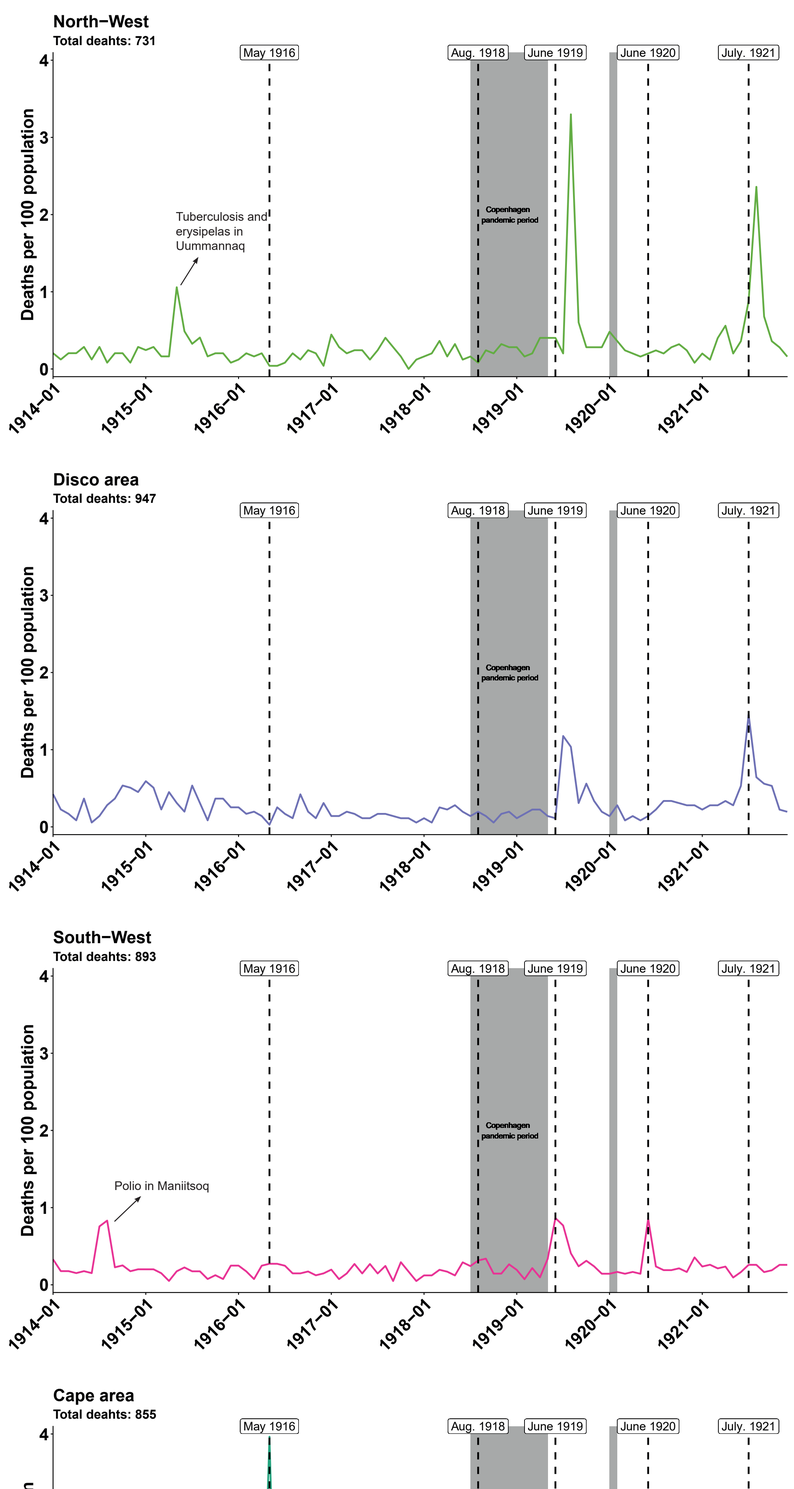
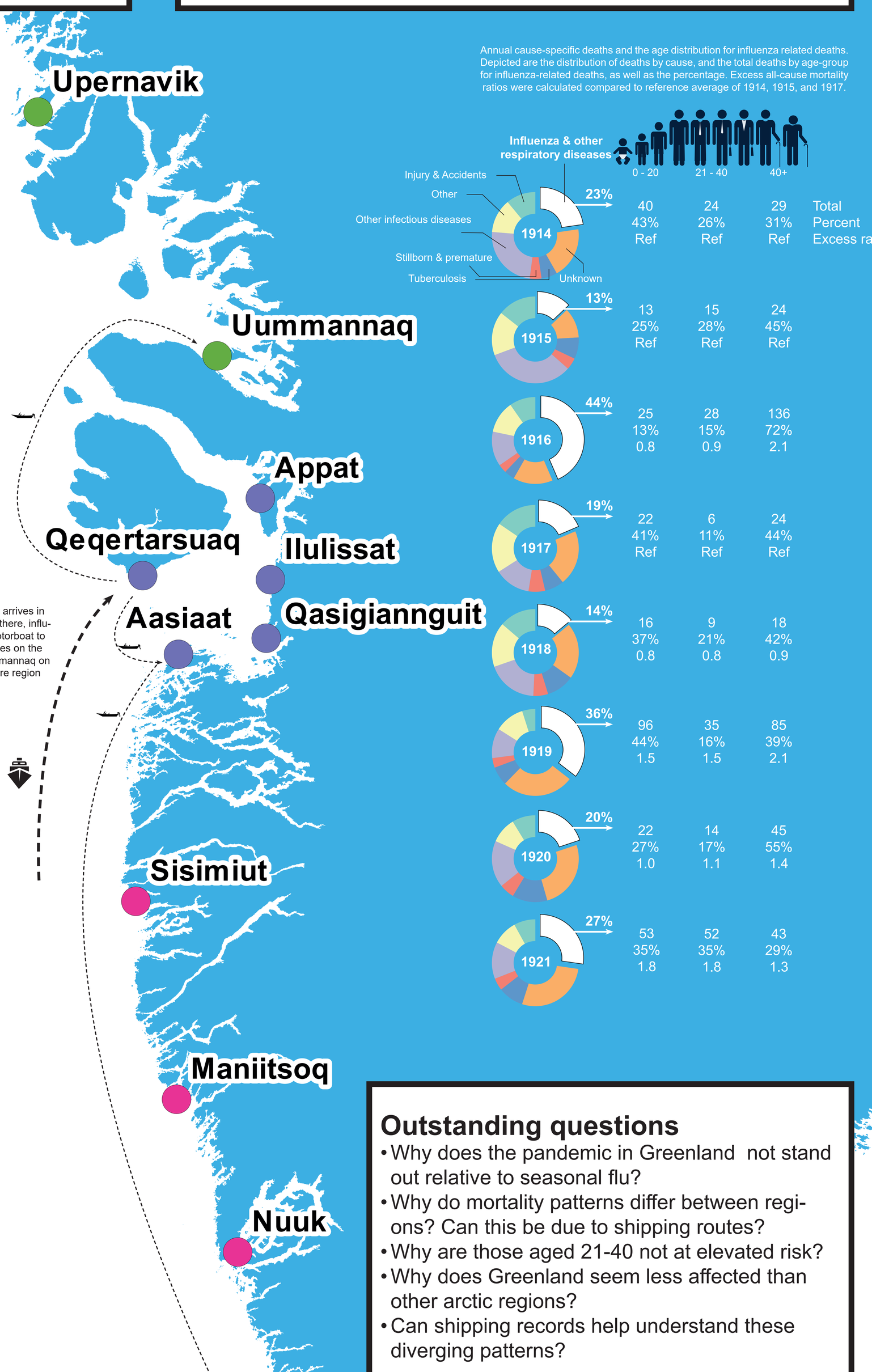
The 1918 - 1921 influenza pandemic was particularly devastating in Arctic and other remote populations. In most other places in the world the pandemic came in 2-4 waves during 1918 to 1921.
We studied spatial and temporal patterns of influenza-related deaths in Greenland for 1914-1921.

We obtained and digitalized 3426 deaths from 14 parish registers representing 4 geographical regions. We retained date and cause of death, age, gender, and settlement. We defined influenza related deaths as: influenza, cold, cold-fever, pneumonia, bronchitis, and ”sting”. Population sizes were interpolated from censuses in 1911 and 1921.

All-cause mortality rates per 100 population from 1914 - 1921. The grey area represents the four pandemic waves in Copenhagen. Dashed lines are included for ease of comparison across regrions.





Annual cause-specific deaths and the age distribution for influenza related deaths. Depicted are the distribution of deaths by cause, and the total deaths by age-group for influenza-related deaths, as well as the percentage. Excess all-cause mortality ratios were calculated compared to reference average of 1914, 1915, and 1917.

Outstanding questions

- Why does the pandemic in Greenland not stand out relative to seasonal flu?
- Why do mortality patterns differ between regions? Can this be due to shipping routes?
- Why are those aged 21-40 not at elevated risk?
- Why does Greenland seem less affected than other arctic regions?
- Can shipping records help understand these diverging patterns?

Key messages

- Outbreaks of influenza-like illness occured in 1916, 1919, 1920 and 1921.
- All outbreaks occured in May-August, when the ports were free of ice and shipping was at its peak.
- Mortality patterns differed dramatically from parish to parish.
- The outbreak in 1916 was local to the Cape region and overall deadlier than the 1919 pandemic.
- Pandemic influenza was delayed by ~one year and started in June 1919, when the ice cracked and ships arrived in Greenland again.
- In total 1.6% of the population died of influenza related deaths in 1919, similar to 1916 (1.4%).
- Documented arrival of influenza by ship confirms that it was influenza.
- Contrary to well-known pandemic signature patterns, all age-groups were equally affected.